Are you Considering a Chart Review?

Chart reviews are a research method used for a number of purposes including evaluation, quality improvement and research studies. This method involves a review of data that may not have been originally collected for research purposes and is a suitable method depending on the evaluation or research question.

BEFORE BEGINNING

Ask Yourself

- What are you trying to find out? It is important to have a clear evaluation or research question in order to confirm whether or not a chart review is the most appropriate research method to collect the information required.
- Will you have the resources required to undertake a chart review? (Refer to Page 2 for resource considerations.)
- What stakeholders need to be consulted to ensure a successful chart review (e.g., medical records, unit clerks, site coordinators, etc.)?
- Is the information that you want to collect from the charts reported in a consistent manner?
- Where are the charts located? How will they be accessed? What resources will be required to identify and pull charts?
- Who will review the charts? Is the reviewer neutral or will there be a risk of reviewer bias? Who has the right to access/review clinical information?
- How will the data be collected? If paper-based, who will be responsible for data-entry? Who will develop the tool/database?
- How will the data be analyzed/reported and used?

Potential Challenges or Limitations

- Missing charts.
- Missing information in charts or fields filled in inconsistently.
- Difficulty interpreting information found in the documents (jargon, acronyms, photocopies).

Not all information is collected consistently in charts. In order to ensure the data that you are looking for is consistently captured and will be reliable seek subject matter expertise.

DEVELOPING A SAMPLING PLAN

Considerations

- What are the inclusion/exclusion criteria for which charts should be audited (e.g., patient age, gender, service received, unit visited, length of stay, etc.)?
- What are the timeframes (e.g., When will the chart audit occur? How frequently will chart audits occur? At what point in or after a patients visit should a chart audit occur?)?

Determining the Sample Size

Depending on the purpose of the chart review it may be important to identify a random sample of charts that is representative of the larger population. In this case one must first determine what confidence level and what margin of error is acceptable. It is important to note at what level the sample needs to be representative (e.g., the unit level, program level , site level, etc.) as this will affect your calculations.

- The **margin of error** tells us how well our random sample represents the total population. The margin of error is used to determine the potential gap that will exist between the results of the charts sampled (reviewed) and the actual value of all patient charts in the period. The common choice for an acceptable margin of error is ±5%.
- The **confidence level** is the amount of uncertainty that can be tolerated. The confidence level selected is determined by how statistically certain you want to be. The typical choices are 90%, 95% or 99%; however 85% and 80% can also be used.

If 241 charts were reviewed to see if they contain a complete patient assessment from a unit where the total number of charts is 642, the margin of error at a 95% confidence level would be ± 5.0. In other words if 50% of the charts audited had a complete patient assessment, you could say you are 95% confident that between 45-55% of all charts have a complete patient assessment.

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DATA COLLECTION INSTRUMENT

Once you have a clear research question, have identified the information needed to answer the question and confirmed that a chart review is the most appropriate means to collecting this data, a data collection instrument will need to be prepared.

Considerations

- Will the data be collected on paper or electronically? Collecting data with an electronic form minimizes the need for data entry at a later time and reduces the possibility of errors that might occur in the process. If electronic—what database software will be used (e.g., FluidSurveys, REDCap*, Microsoft Access, etc.)?
- How do you want to be able to present your data (e.g., by age, gender, services received, etc.)? This will inform some of the fields to include .
- To minimize data collection errors, wherever possible limit manual entry of numbers or text. Consider performing audits/checks on data entered.

**REDCap is available through the Research & Capacity Building Department for a fee.*

VALIDITY & RELIABILITY

It is important to develop a methodology that supports the collection of valid and reliable data.

- Content validity: Does the tool capture all relevant information?
- Concurrent validity: Does the information collected correspond with observations?
- Test-retest reliability: Is the information collected from the same chart in a consistent manner when the same person collects the data on two separate occasions?
- Inter-rater reliability: Do any two reviewers record the same information?
- Reviewer bias: Does the data collector have any predisposition that prevents unbiased consideration of the evaluation or research question? It is important for a researcher or data collector to acknowledge any personal or cultural bias, so as not to influence the data collection or analysis.

RESOURCE CONSIDERATIONS

Activities

- Research question development and confirmation of chart review as appropriate method .
- Data collection instrument development and the preparation of detailed instructions.
- Sample plan development.
- Pulling and replacing charts for audit.
- Data collection - includes training and may include travel time to site and accommodations.
- Database development.
- Data entry (if paper-based data collection).
- Data preparation and analysis - includes data cleaning, validation and verification.
- Reporting/presentation of findings.

PRIVACY CONSIDERATIONS

- If personal information is being collected, ensure that data is stored in a secure fashion.
- Check to see if the project requires the patient's informed consent.
- Best practices state that the principle of data minimization applies to the release of chart information. This means that information not required for the project, should not be collected.
- Does this project require ethics approval?

ADDITIONAL INFORMATION

- **Best Practices in Retrospective Chart Review**
  http://www.fraserhealth.ca/media/2011%2001%2019%20Best%20practices%20in%20retrospective%20chart%20review.pdf
- **The retrospective chart review: important methodological considerations**
  http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3853868/